JOINT INVENTORS

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Richard Zimmermann

APPLICATION FOR UNITED STATES LETTERS PATENT

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it known that we, Joseph Vistitsky a citizen of the United States, residing at 851 Belmar Lane, Buffalo Grove, Illinois 60089 in the County of Lake and Svetlana A. Mett a citizen of the United States, residing at 851 Belmar Lane, Buffalo Grove, Illinois 60089 in the County of Lake have invented a new and useful UPPER BODY SUPPORT DEVICE, of which the following is a specification.

UPPER BODY SUPPORT DEVICE

Field of Invention

The present invention generally relates to body support devices, and more specifically, to a device for providing upper body support for a person when leaning over an elevated surface.

Background of the Invention

In an upright position, the muscles of the back show only slight intermittent activity. The significant increase in their activity takes place when a person attempts to lean or flex forward. The magnitude of stress acting on the spine is directly proportionate to the downward force created by the weight of the upper body and the distance from the point where the body bends to the line of gravity acting on the upper body. Any factors that increase or decrease this distance and any factors that increase or decrease upper body mass will have direct effect on the stress acting on the spine.

Most people frequently lean forward while standing with or without the arms extended in front of the body. Typical examples include leaning over a kitchen sink to wash hands, dishes or food items; leaning over a table to access objects or clean the table; leaning over a bathroom sink to brush teeth, shave or put on makeup. Generally, any task that requires a person to lean forward increases the tension

forces on the lower back as muscle force must continually increase to counteract the downward force created by the upper body weight and any load held.

In today's society, sedentary life style and jobs that require minimum physical activity lead to weakening of back muscles regardless of a person's age. Leaning forward requires a strong set of back and lower body muscles, including buttocks, thigh muscles and leg muscles.

When subjected to prolonged and repetitive leaning forward, posterior trunk and lumbar muscles by themselves are not strong enough, leading to back pain and injury such as muscle strain and disk herniation. For the elderly, even brief periods of leaning forward, while standing or sitting, may be painful, if not impossible. Moreover, people with previous back injuries or those recovering from such injuries may not be capable of leaning forward at all while standing.

The leaning forward position is common not only in a domestic environment, but also in industrial and retail settings. Many workers are required to stand and lean forward over various elevated surfaces such as machinery, counter tops, and tables for many hours at a time. Among such workers, back muscle fatigue and injury is common.

There are many back and neck support devices available on the market today. For instance, some factory workers are required to wear back support harnesses, providing back support when lifting heavy objects. Other upper body supports are primarily designed for a person in a seated position. None of them are designed to support the upper body while leaning forward over an elevated surface.

Summary of the Invention

A body support device for supporting the upper body of a person when leaning over an elevated surface includes an underside portion adapted for placement on an edge portion of an elevated surface and an upper side portion adapted to leaning thereon by a person. The placement of the underside portion on the edge portion of the elevated surface and leaning toward and contacting the upper side portion by the person provides upper body support for the person.

The support device may include a first portion having an inner side and an outer side and a second portion having an inner side and an outer side wherein the second portion is connected to the first portion. The inner side of the first portion and the inner side of the second portion form the underside portion, and the outer side of the first portion and the outer side of the second portion form the upper side portion. Placement of the inner side of the first portion on top of the elevated surface and the inner side of the second portion on the side of the elevated surface provides upper body support for a person leaning on the outer side of the second portion. Alternately, placement of the inner side of the second portion on top of the elevated surface and the inner side of the first portion on the side of the elevated surface provides upper body support for a person leaning on the outer side of the first portion.

The underside portion is shaped for height and distance adjustable placement of the body support device on the edge portion of the elevated surface. There are many ways to stabilize the body support device on an elevated surface. For

example, a weight may be added to a portion positioned above the elevated surface when the underside portion is placed on the edge portion of the elevated surface to maintain the body support device on the edge portion of the elevated surface. The body support device can also be fastened to an elevated surface. Additionally, the body support device can be fastened to a person with a belt or harness.

The body support device or an outer side thereof may be constructed from a flexible material, such as foam. Additionally, the body support device may be water resistant and can be constructed from water resistant foam.

Brief Description of Drawings

Preferred exemplary embodiments of the invention are set forth in the following detailed description and accompanying drawings in which like reference numerals represent like parts throughout, and in which:

FIG. 1 is an isometric view of an embodiment of the upper body support device of the present invention.

FIG. 2 is an isometric view of an embodiment of the upper body support of device of the present invention.

FIG. 3 is the upper body support device of FIG. 1 shown with a bar-shaped weight to maintain the support device of the present invention on an elevated

surface.

FIG. 4 is an isometric view of an embodiment of the support device of the present invention showing height and distance adjustability when placed on an elevated surface.

FIG. 5 is an isometric view of an embodiment of the support device of the present invention having provisions for fastening the support device to a person.

Description of the Preferred Embodiments

Referring to FIGS. 1 and 2, a support device 10 for supporting the upper body of a person leaning over an elevated surface 12 includes an underside 14 and an upper side 16. The underside 14 of the support device 10 is shaped for placement on an edge portion 17 of the elevated surface 12. For upper body support when leaning over the elevated surface 12, a person can place the support device 10 on the edge portion 17 of the elevated surface 12 and lean on the upper side 16 or the outer side 28, or both.

The support device 10 further includes a first portion 18 and a second portion 20 that are attached together. An inner side 22 of the first portion 18 and an inner side 24 of the second portion 20 form the underside 14 of the support device 10. Similarly, an outer side 26 of the first portion 18 and an outer side 28 of the second portion 20 form the upper side 16 of the support device 10. The support

device 10 can be placed on the edge portion 17 of an elevated surface 12 such that either the first portion 18 or the second portion 20 is on a top surface 27 of the elevated surface 12. If the first portion 18 is placed on the top surface 27 of the elevated surface 12, the second portion 20 will contact the side 29 of the elevated surface 12. Alternately, if the second portion 20 is placed on the top surface 27 of the elevated surface 12, the first portion 18 will contact the side 29 of the elevated surface 12.

Examples of elevated surfaces include a counter top, a table top, the edge portion of a sink, elevated portions of various machines and equipment used in manufacturing, or in general, any surface that is elevated above a floor surface. The underside 14 of the support device 10 can be shaped to fit a variety of elevated surfaces. For elevated surfaces with linear edges, the underside 14 can be constructed in a complementary linear shape so that the support device 10 can fit the edge of that elevated surface. For elevated surfaces having non-linear shapes, the underside 14 can be constructed in a complementary non-linear shape so that the support device 10 can fit the edge of that elevated surface. Examples of support surfaces with non-linear edge shapes include oval or circular counter tops, tables, sinks, or surfaces with varying heights. The underside 14 of the support device 10, for example, can be curved to match the curvature of the edge of a round or an oval table.

In an upright position, the muscles of the back show only slight intermittent activity. A significant increase in their activity takes place when a person attempts to lean or flex forward. The magnitude of stress acting on the spine is directly

proportionate to the downward force created by the weight of the upper body and the distance from the point where the body bends to the line of gravity acting on the upper body. The support device 10 disclosed herein reduces both the distance to the elevated surface and the weight distribution of the upper body by transferring part of the stress from the body of a person to the edge portion 17 of an elevated surface 12. As a result, the support device 10 disclosed herein makes it easer to sustain prolonged periods of leaning or repetitive leaning of the body over an elevated surface 12 for those with upper body injuries, the elderly, and even healthy individuals. An additional benefit of the disclosed support device 10 is that it provides a resting place for a person's elbows. The resting of the elbows on the support device 10 provides additional stress relief for the person's upper body.

The support device 10 may be maintained on the elevated surface 12 by a person leaning on the upper side 16. The support device 10, when not fastened to an elevated surface or a person's body, preferably is independently maintained on the elevated surface 12 by a weight 31 (FIG. 3) placed on or within the support device 10. The weight 31 may be any size or shape and may be placed on or within a portion of the support device 10 (i.e., the first portion 18 or the second portion 20) that is on the top surface 27 of the elevated surface 12. Preferably, the weight 31 is concealed in a cavity in the support device 10 to not only secure the weight in the support device 10, but also to prevent the weight from obstructing the work space of a person who is leaning on the support device 10. A preferred method of maintaining the support device 10 on the elevated surface 12 is shown in FIG. 3. The first portion 18 and the second portion 20 each include a longitudinal bore 32.

The support device 10 further includes a bar-shaped weight 34 that is sized to slidably fit inside the bore 32. When the support device 10 is placed on the edge portion 17 of the elevated surface 12, the bar-shaped weight 34 is inserted in the bore 32 of the portion (i.e., the first portion 18 or the second portion 20) that is placed on the top surface 27 of the elevated surface 12. The weight of the bar-shaped weight 34 prevents the support device 10 from falling off the edge portion 17 of the elevated surface 12.

Maintaining the support device 10 on an elevated surface 12 may be accomplished by means other than placing a weight on or within the support device 10. For example, either the surface of the inner side 22 of the first portion 18 or the surface of the inner side 24 of the second portion 20, or both, can be made rough to frictionally engage the top surface 27 and/or the side 29 of the elevated surface 12 and prevent the support device 10 from falling off the edge portion 17 thereof. The support device 10 may be fastened to the elevated surface 12 by the use of clamps, fasteners or adhesive. One of ordinary skill in the art can determine which of the foregoing methods of maintaining the support device 10 on the elevated surface 12 may be appropriate depending on the type of elevated surface 12 for which the support device is used, a person's preferences, and the type of work performed when leaning over the elevated surface 12. A factor that may be considered in choosing a method of maintaining the support device 10 on the elevated surface 12 may be whether maintaining the support device 10 on the elevated surface 12 will be permanent or temporary. For temporary application of the support device 10, a person leaning on the upper side 16, placing weights on the

support device 10, or frictional engagement of the support device 10 with an elevated surface 12 may be the preferred methods. For more permanent applications of the support device 10, the use of fasteners, clamps or adhesives may be the preferred methods.

For those applications where several elevated surfaces around the person's workspace are repeatedly used, the support device 10 can be manufactured to include provisions for fastening the support device 10 to a person with a belt or harness. For example, as shown in FIG. 5, the support device 10 may include belt loops 36 for receiving a belt 38 to fasten the support device 10 to the person. With the support device 10 fastened to a person's body, the support device 10 will move with the person and provide upper body support for the person when repeatedly leaning over several different elevated surfaces.

The dimensions of the first portion 18 and the second portion 20 of the support device 10 may be the same. Preferably, the thickness T_1 (shown in FIG. 1) of the first portion 18 is different than the thickness T_2 (shown in FIG. 1) of the second portion 20 to allow height and distance adjustability of the support device 10 when placed on the edge portion 17 of an elevated surface 12. The alternate placement of either the first portion 18 or the second portion 20 on the elevated surface 12 in combination with the difference in thickness between the first portion 18 and the second portion 20 allow for placement of the support device 10 on the edge portion 17 of an elevated surface 12 at different heights from the top surface 27 of the elevated surface 12 and at different distances from the side 29 of the elevated surface 12. For example, the thickness T_1 of the first portion 18 or the

thickness T_2 of the second portion 20, in conjunction with which particular portion is placed on the top surface 27 of the elevated surface 12, determines the height of the upper side 16 of the support device 10 from the top surface 27 of the elevated surface 12. Similarly, the thickness T_1 of the first portion 18 or the thickness T_2 of the second portion 20, in conjunction with which particular portion is placed on the side 29 of the elevated surface 12, determines the distance of the upper side 16 of the support device 10 from the side 29 of the elevated surface 12. Preferably, as shown in FIG. 4, the thickness of the first portion 18 and the thickness of the second portion 20 increase in a step-like manner across their widths, respectively. As a result, more height and distance variations in placement of the support device 10 on the edge portion 17 of an elevated surface 12 are possible. In effect, in one embodiment, the underside 14 of the support device 10 is preferably shaped similar to a series of steps 30. The underside 14 of the support device 10 can be placed on the edge portion 17 of the elevated surface 12 such that a corner where a step 30 transitions to another step 30 fits the edge portion 17 of the elevated surface 12 in a complementary manner. Thus, each step 30 makes possible a unique height and distance placement of the support device 10 on the elevated surface 12 and can accommodate any other surface having any shape with varying heights. Such height and distance adjustability of the support device 10 allows its use by a person when standing and leaning over an elevated surface 12, sitting and leaning over an elevated surface 12, or any other body position where the person is leaning over the elevated surface 12. Accordingly, the body support device 10 may be positioned

relative to a person's body anywhere from below the person's chin to above the person's knees.

The first portion 18 and the second portion 20 can be permanently attached to each other by soldering, welding, adhesive bonding, or other methods of permanent attachment to provide a one-piece support device 10. The first portion 18 and the second portion 20 can also be permanently attached to each other by being manufactured as a one-piece support device 10. Preferably, to provide versatile applicability of the support device 10 to a variety of elevated surfaces 12 at various heights and distances from the edge portion of the elevated surfaces 12, the first portion 18 and the second portion 20 may be detachably attached to each other. As a result, a first portion 18 of desirable size and shape and a second portion 20 of desirable size and shape can be attached together to provide a support device 10 having desirable height and distance relative to the elevated surface 12. Furthermore, a first portion 18 and a second portion 20 can be selected to provide applicability to a particular type of elevated surface 12 (e.g. curved, circular, etc.). A person, for example, can select a second portion 20 that provides a desired distance from the side of an elevated surface 12, and proceed to select a first portion 18 that provides a desired height from the top of the elevated surface 12. Thus, the mixing and matching of various first portions 18 and second portions 20 provide endless possibilities of height and distance variations of the support device 10 when applied to a variety of elevated surfaces 10. The first portion 18 and the second portion 20 can be detachably attached together by fasteners, velcro, adhesives that

form a non-permanent bond, and many other methods that are known by those of ordinary skill in the art for detachably attaching two objects.

The objective of the disclosed support device 10 is to provide upper body support and comfort for a person who leans over an elevated surface 12. To that end, the upper side 16 of the support device 10 can be shaped for receiving a person's mid portion (FIG. 2). Such shape is generally a curved shape resembling the curvature of the front of a person's mid portion. Preferably, however, the portion of the support device 10 that is leaned on (i.e., the outer side 26 of the first portion 18 or the outer side 28 of the second portion 20) can be constructed with a flexible and light weight material that will absorb a person's weight and conform to the shape of a person's mid portion. Typical flexible and light weight materials that can be used for the support device 10 include foam and soft rubber, and even light-weight metal or wood. Preferably, the support device 10 is constructed with a material that is water and moisture resistant. In general, the construction materials for the support device 10 can be chosen to provide optimal functionality, maintainability, and durability for the support device 10 for the particular environment in which it is used.

Several preferred embodiments of the present invention have been shown and described to illustrate the advantages and features of the present invention. Many additional changes and modifications could be made to the invention without departing from the fair scope and spirit thereof. The scope of some changes is discussed above. The scope of others will become apparent from the appended claims.